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NAVFAC **IGS-08210 (SEPTEMBER 2002)**

Preparing Activity: LANTNAVFACENGCOM **Based on NFGS-08210N**

ITALIAN GUIDE SPECIFICATIONS

Use for ITALIAN projects only

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SECTION 08210

WOOD DOORS

09/02

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NOTE: This guide specification is issued by the Atlantic Division, Naval Facilities Engineering Command for regional use in Italy.

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NOTE: This guide specification covers requirements for wood doors.

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NOTE: On the drawings, show:

1. Locations

2. Sizes, types, thicknesses, glazing, and louvers

3. Designs

4. Fire rating requirements

5. Color

6. Door swing

7. Sound level class rating.

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Comments and suggestion on this specification are welcome and should be directed to the technical proponent of the specification. A listing of technical proponents, including their organization designation and telephone number, is on the Internet.

Use of electronic communication is encouraged.

Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.

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PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

ITALIAN LAWS AND NORMS (D.M.)(LAW)(CIRC.)

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NOTE: Italian laws and normatives are the legislative regulations and decrees issued by the Italian government in the form of laws, norms, decrees, circulars, and letters. These Laws and Decrees concur together with Norms and Standards in forming the governing directives for construction.

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DM 30.11.83 (30 November 1983) Fire Protection Terms, General Definitions and Graphic Symbols

ITALIAN NATIONAL ASSOCIATION FOR UNIFICATION OF STANDARDS (UNI)

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NOTE: A UNI Norm is a technical normative recognized as Italian Law, submitted by a private organization "Ente Nazionale Italiano di Unificazione" for Italy and is available only in the Italian language. It is the National Standard.

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UNI 4143 (1958) Tests on wood - Axial split test

UNI 7525 (1976) Methods of Test for external windows - Standard sequence for the performance tests

UNI 8204 (1981) Building - External windows - Classification based on acoustical performances

UNI 9723/A1 (1990/A1:1996) Fire resistance of doors and locking devices - Test methods and classification criteria

ITALIAN/EUROPEAN HARMONIZATION STANDARDS (UNI EN)(UNI ENV)(CEI EN) (UNI EN ISO)(UNI ISO)

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NOTE: A UNI EN, UNI ENV, CEI EN, UNI EN ISO or UNI ISO is a European Standard with a coincident Italian National Standard or International Standard. The two standards are identical, with most (but not all) EN's available in the English language and the UNI available only in the Italian language.

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UNI EN 205	(1992) Test metthods for wood adhesives for non-structural applications - Determination of tensile strength of lap joint
UNI EN 438-1	(1993) Decorative high-pressure laminates (HPL) - Sheets based on thermosetting resins - Part 1: Specifications
UNI EN 1026	(2001) Windows and doors - Air permeability - Test method
UNI ENV 1316-3	(1999) Hardwood round timber - Qualitative classification - Part 3: Ash and maples and sycamore
UNI ISO 8275	(1987) Doorsets - Vertical load test

ITALIAN WOOD QUALITY SOCIETY (CIS)

IWQS	Italian Wood Quality Society Monograph

TECHNICAL CLOSURE CONSTRUCTION UNION (UCT)

UCT	Technical Closure Construction Union Standards

1.2 SUBMITTALS

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NOTE: NOTE:

Submittals must be limited to those necessary for adequate quality control. The importance of an item in the project should be one of the primary factors in determining if a submittal for the item is required.

A “G” following a submittal item indicates that the submittal requires Government approval. Some submittals are already marked with a “G”. Only delete an existing “G” if the submittal item is not complex and can be reviewed through the Contractor’s Quality Control system. Only add a “G” if the

submittal is sufficiently important or complex in context of the project.

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Submit the following in accordance with Section 01330, "Submittal Procedures."

SD-02 Shop Drawings

Doors; G

Submit drawings or catalog data showing each type of door unit [; descriptive data of head and jamb weatherstripping with installation instructions shall be included]. Drawings and data shall indicate door type and construction, sizes, thickness, [methods of assembly,] [door louvers,] and [glazing,].

SD-03 Product Data

Doors; G

Accessories

Water-resistant sealer

Sample warranty

[Sound level class rating; G]

[Fire resistance rating; G]

SD-04 Samples

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NOTE: Require door samples only for relatively larger quantities of doors and only when justified and desired.

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Doors

Prior to the delivery of wood doors, submit a sample section of each type of door which shows the stile, rail, veneer, finish, and core construction.

Door finish colors; G

Submit a minimum of three color selection samples [for selection by the Contracting Officer].

SD-06 Test Reports

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NOTE: Require tests and test reports when fire rated wood doors are included in the project. Doors designated to have REI 60 label have a 60 minute (1 hour) rating, doors designated to have REI 90 label have a 90 minute (1 1/2 hour) rating.

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Split resistance

Hinge loading resistance

Submit split resistance test report for doors and hinge loading resistance test report for doors.

1.3 DELIVERY, STORAGE, AND HANDLING

Deliver doors to the site in an undamaged condition and protect against damage and dampness. Stack doors flat under cover. Support on blocking, a minimum of 100 mm thick, located at each end and at the midpoint of the door. Store doors in a well-ventilated building so that they will not be exposed to excessive moisture, heat, dryness, direct sunlight, or extreme changes of temperature and humidity. [Do not store in a building under construction until concrete, masonry work, and plaster are dry.] Replace defective or damaged doors with new ones.

1.4 WARRANTY

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NOTE: The warranty clause in this guide specification has been approved by NAVFACENGCOMHQ in accordance with the requirements of NAVFAC P-68. The paragraph in this guide specification may be used without any other HQ approval or request for waiver.

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Fire rated doors shall be provided with a written warranty indicating that the Manufacturer shall warrant that doors shall be free of defects as set forth in the door manufacturer's standard door warranty.

PART 2 PRODUCTS

2.1 SOURCE MANUFACTURERS

2.1.1 Wood Doors

The following manufacturers have products that comply with these specifications:

3elle
Via Togliatti, 93
40026 Imola, Italy
Tel: 0542/630111
Fax: 0542/630211

SAN.CO. Costruzioni Tecnologiche S.p.A.
Via Fornaci, 26
38062 Arco (TN)
Tel: 0464-588111
Fax: 0464-588222

SCRIGNO srl
via Casale, 975
47828 Sant'Ermete di Santarcangelo, Italy
Tel: 0541/757711
Fax: 0541/758744

LUALDI S.p.A.
Via Piemonte 13
20010 Mesero (MI)
Tel: 02/9789248
Fax 02/97289463

2.1 DOORS

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NOTE: It is preferred that door sizes, designs and thicknesses be indicated on the drawings; if not indicated, schedule appropriate criteria in specifications. Refer to UTC for designs and quality assurance stock doors.
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NOTE: Include requirements for wood frames, except for prehung interior wood door units, in Section 06200, "Finish Carpentry." Include requirements for metal frames for wood doors in Section 08110, "Steel Doors and Frames." Include requirements for hardware, other than for sliding and bi-fold doors, in Section 08710, "Door Hardware."
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NOTE: Premium or select grade is intended for natural or stain finish, standard grade is intended for opaque (paint) finish.
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Provide UCT approved doors of the types, sizes, and designs [indicated] [specified].

2.1.1 Stile and Rail Doors

[Premium] [Standard] grade [Tanganika Walnut] [Italian Walnut] doors or [premium or select] [standard] stile and rail doors conforming to IWQS. When laminated panels are furnished, they shall be not less than three ply. Flat panels shall have a minimum finished panel thickness of 13 mm. Raised

panels shall have a minimum finished panel thickness of 20 mm.

2.1.2 Flush Doors

Flush doors shall conform to IWQS. Doors shall have lock blocks and 44 mm minimum thickness hinge stile. Stile edge bands of doors to receive natural finish shall be hardwood, compatible with face veneer. Stile edge bands of doors to be painted shall be mill option specie. No visible finger joints will be accepted in stile edge bands. When used, locate finger-joints under hardware.

[2.1.2.1 Exterior Flush Doors

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NOTE: Use of wood doors on exterior of buildings is not recommended for permanent structures unless the doors are well protected from the weather.
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Solid wood core shall conform to IWQS requirements. Doors shall have [tempered hardboard] [medium density overlayed hardwood veneer] faces. Edge bands shall be wood. [Openings in exterior flush doors shall be flashed with [aluminum] [bronze] [copper] flashings at the bottom of the openings.]

]2.1.2.2 Interior Flush Doors

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NOTE: Hollow core doors should be used for light duty residential only. Face veneers of doors for painted finish should be either hardboard or sound grade rotary cut hardwood. Face veneers of doors for natural finish should be premium or good grade rotary cut hardwood. Premium grade, book matched, wood veneer should only be specified for medical facilities and other high quality installations such as chapels, hospitals, and where the additional cost is justified. Select grade and species desired for hardwood veneer faced doors. Specify other veneers if desired (Tanganika Walnut, cherry, etc.); .
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Provide [staved lumber] [particleboard] [hollow] core, flush doors conforming to IWQS with faces of [sound grade hardwood or hardboard for painted finish] [[premium] [good] grade Tanganika Walnut] [select Italian Walnut][plastic laminate]. [Hardwood veneers shall be [[rotary cut] [plain sliced] [quarter sliced]] [[random] [slip] [book] matched]]. [Finish plastic laminate faced doors on both vertical edges with [wood] [laminated plastic] of color matching faces.]

2.1.3 Bi-Fold Closet Doors

Provide [hardboard grade flush doors conforming to IWQS requirements.] [paneled] [louvered] doors [premium or select] [standard] grade, conforming

to IWQS requirements. Doors shall be 44 mm thick. Equip doors with the manufacturer's standard hardware, including tracks, hinges, guides, and pulls.

2.1.4 Sliding Closet Doors

[Flush doors shall conform to IWQS requirements.] [Paneled] [and] [Louvered] doors shall conform to IWQS requirements for [premium or select] [standard] grade. Doors shall be 30 mm or 44 mm thick. Equip doors with the manufacturer's standard hardware.

2.1.5 X-Ray Resistant Doors

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NOTE: Specify minimum door thickness as follows: 44.5 mm for lead sheet 5 mm thick and less; 50 mm for lead sheet over 5 to 6 mm thick; 57 mm for lead sheet over 6 to 10 mm thick; 64 mm for sheet lead over 10 to 13 mm thick. Coordinate with Section 13092, "X-Ray Shielding."
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IWQS solid core flush doors, hardwood veneered, minimum [44.5] [50] [57] [64] mm thick, of sizes and construction indicated. Lead sheet shall be 99.9 percent pure lead, [_____] mm thick, free from dross, oxide, inclusions, laminations, scale, blisters, and cracks. Lead sheets shall be located as standard with the manufacturer, shall extend fully from edge to edge, from top to bottom, and shall be an integral part of the door. Provide wood edge strips compatible with face veneers.

2.1.6 Acoustical Doors

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NOTE: Ensure that sound level class rating is coordinated with the sound level class ratings of walls detailed on drawings. Doors should be provided with sound level class rating equal to the walls and ceilings. Except where walls and ceilings are designed for a sound level class rating of 35 dBa or more, specify R2 rating. Doors requiring ratings greater than 35 dBa may have to be thicker than otherwise specified. Check manufacturer's literature.
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Shall be not less than 60 mm thick, IWQS, solid core, constructed to provide Sound Level Class rating of R1 [20-27 dBa] R2 [27-35 dBa] R3 [35 dBa] [_____] when tested in accordance with UNI 8204.

2.1.7 [Composite-Type] Fire Doors

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NOTE: Composite-Type fire doors are not recommended for use in areas where security is desired and/or

high abuse is expected. A hollow-metal type fire door will provide a higher degree of security and withstand more abuse.

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Doors specified or indicated to have a fire resistance rating shall conform to the requirements of DM 30.11.83 and UNI 9723/A1 for the class of door indicated. Affix a permanent metal label with raised or incised markings indicating testing agency's name and approved hourly fire rating to hinge edge of each door.

2.1.8 Prehung Doors

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NOTE: Use of wood frames in new construction is not recommended except for family housing.

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Frames for prehung interior doors to be for [painted] [clear] finish, with [3 piece adjustable jamb units] [3 piece adjustable jamb units with pins]. Provide doors as specified complete with frame, hinges, and prepared to receive finish hardware.

2.2 ACCESSORIES

2.2.1 Door Louvers

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NOTE: The use of wood louvers in exterior wood doors is not recommended. Louvers are not permitted in fire-rated doors with glass lights or exit devices. Louvers may be no larger than 600 by 600 mm and must be an approved fusible link type. Delete the sentence referring to blocking if hollow core doors are not included in the project.

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Fabricate from wood and of sizes indicated. Louvers shall be of the manufacturer's standard design and shall transmit a minimum of 35 percent free air. Louvers shall be the [slat] [sightproof inverted vee slat] type. [Block hollow core doors to provide solid anchorage for the louvers.] Mount louvers in the door [as indicated] with flush wood moldings. [Metal louvers for wood doors are specified in Section 10201, "Metal [Wall] [and] [Door] Louvers."]

2.2.2 Door Light Openings

Provide glazed openings with the manufacturer's standard wood moldings [except that moldings for doors to receive natural finish shall be of the same specie and color as the face veneers]. Moldings on exterior doors shall have sloped surfaces. [Provide glazed openings in fire-rated doors with fire rated frames.] Glazing is specified in Section 08800, "Glazing."

2.2.3 Weatherstripping

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NOTE: Include weatherstripping when Section 08710, "Door Hardware," is NOT included in project specification; otherwise, add to Section 08710. Complete weatherstripping should be specified for exterior doors of heated and air-conditioned spaces. Thresholds with extended lip will require door weatherstripping shaped to engage the extended lip on the threshold. Thresholds with raised stops to receive latch bolts of panic-type hardware will require vinyl or neoprene inserts in face of stop. Specify overlapping astragal only when one leaf of double doors is inactive and is equipped with head and foot bolts. Avoid installations which will require door "coordinators."

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NOTE: Maximum air leakage rates are 0.0025 cubic meter per second per sq. m of door area for residential swinging doors and 0.003125 per cubic meter per second per sq. m of door area for non-residential swinging doors.

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Provide weatherstripping that is a standard cataloged product of a manufacturer regularly engaged in the manufacture of this specialized item. Weatherstripping shall be [tempered spring bronze] [or] [looped neoprene or vinyl held in an extruded non-ferrous metal housing]. [Bronze weatherstripping shall be a minimum of 0.23 mm thick for sills, and a minimum of 0.16 mm thick elsewhere.] Air leakage of weatherstripped doors shall not exceed [0.0025] [0.003125] cubic meter per second of air per square meter of door area when tested in accordance with UNI 7525 and UNI EN 1026.

2.2.4 Additional Hardware Reinforcement

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NOTE: Size and shape of core blocking can add considerably to the price of doors. Check manufacturer's catalogs prior to specifying the larger 125 mm blocking.

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Provide fire rated doors with hardware reinforcement blocking. [Size of lock blocks shall be as required to secure the hardware specified.] [Top, bottom and intermediate rail blocks shall measure 125 mm minimum by full core width.] Reinforcement blocking shall be in compliance with the manufacturer's labeling requirements and shall not be mineral material similar to the core.

2.3 FABRICATION

2.3.1 Marking

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NOTE: Marking may not be required for smaller jobs, or for doors not required to be fire-rated. Delete this paragraph and coordinate with paragraph "SUBMITTALS" when appropriate.

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Each door shall bear a stamp, brand, or other identifying mark indicating quality and construction of the door.

2.3.2 Quality and Construction

Identify the standard on which the construction of the door was based [, identify the standard under which preservative treatment was made,] and identify doors having an exterior glue bond.

2.3.3 Preservative Treatment

Exterior doors shall be water-repellent preservative treated and so marked at the plant in accordance with IWQS.

2.3.4 Adhesives and Bonds

UNI EN 205. Use exterior glue bond for exterior doors and interior glue bond for interior doors. Adhesive for doors to receive a natural finish shall be nonstaining.

2.3.5 Prefitting

At the Contractor's option, doors may be provided factory pre-fit. Doors shall be sized and machined at the factory by the door manufacturer in accordance with the standards under which they are produced. The work shall include sizing, bevelling edges, mortising, and drilling for hardware and providing necessary beaded openings for glass and louvers. Provide the door manufacturer with the necessary hardware samples, and frame and hardware schedules as required to coordinate the work.

2.3.6 Finishes

2.3.6.1 Field Painting

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NOTE: Finishes for interior wood surfaces are specified in Section 09900, "Paints and Coatings." When new interior doors are to be provided, add the following to Section 09900, Table 7:

1. Wood Door Surfaces, Pigmented Finish:

1 coat of sealer
1 coat of primer
Sand (220 grit)

2 coats of alkyd semigloss enamel,

2. Wood Door Surfaces, Natural Finish:
1 coat of sealer
1 coat of primer
Sand (220 grit)
2 coats of clear, moisture curing urethane coating

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Factory prime or seal doors, and field paint as specified in Section 09900, "Paints and Coatings."

2.3.6.2 Factory Finish

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NOTE: Factory finish, other than plastic laminate and natural finishes, may not be available nor cost effective for relatively small quantities of doors (less than 200 doors of the same finish). Contact door manufacturers for availability and cost.

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NOTE: Select open grain effect where the more expensive closed grain effect is not required. Closed grain effect provides a near furniture-like finish and adds considerably to the cost of a door while it may not necessarily add to the durability.

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Provide doors finished at the factory by the door manufacturer as follows: UNI ENV 1316-3, Conversion varnish alkyd urea or Vinyl catalyzed. The coating shall be premium, medium rubbed sheen, [open] [closed] grain effect. Use stain when required to produce the finish specified for color. Seal edges, cutouts, trim, and wood accessories, and apply two coats of finish compatible with the door face finish. Touch-up finishes that are scratched or marred, or where exposed fastener holes are filled, in accordance with the door manufacturer's instructions. Match color and sheen of factory finish using materials compatible for field application.

2.3.6.3 Plastic Laminate Finish

Factory applied, UNI EN 438-1, HDS [HDF] Class, 1.25 mm minimum thickness, satin finish. Glue laminated plastic for hollow core doors to wood veneer, plywood, or hardboard backing to form door panel. Combined minimum thickness of laminate sheet and backing shall be 2.5 mm.

2.3.6.4 Color

Provide door finish colors [as indicated] [as selected by the Contracting Officer from the color selection samples].

2.3.7 Water-Resistant Sealer

Provide a water-resistant sealer compatible with the specified finish[es] as approved and as recommended by the door manufacturer.

2.4 SOURCE QUALITY CONTROL

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NOTE: Require tests and test reports when fire rated wood doors are included in the project. Doors designated to have REI 60 shall have 60 minute (1 hour rating), doors designated to have REI 90 shall have 90 minute (1 1/2 hour) rating.

NOTE: FIRE RESISTANCE:
A Construction Element Reaction (component or structure) to preserve in accordance with a pre-established thermal program and for determined period of time or part of it per Italian law DM 30 November 1983, "Fire Protection Terms, General Definitions and Graphic Symbols":

- Stability "R"
- Seal "E"
- Thermal Insulation "I"

R = STABILITY: A construction Element Reaction to preserve its mechanical resistance under fire action.

E = SEAL: A Construction Element Reaction for not letting go through nor produce, if subjected under fire on one side, and flames, vapors or warm gas on the other non-exposed side.

I = THERMAL INSULATION: A Construction Element Reaction to reduce in a given limited time (as established in UNI 9723 reaching an average temperature of 140 deg. C on the opposite side of the fire exposed surface) the transmission of heat.

In accordance with the above described requirements the elements can be classified with the following initials REI, RE, RI, or R followed by a number indicating the amount of time given in minutes of fire resistance.

Require tests and test reports when fire rated wood doors are included in the project. Doors designated to have REI 60 label have a 60 minute hour rating, doors designated to have REI 90 label have a 90 minute hour rating.

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Stiles of REI 60 minute and REI 90 minute (R=Stability, E=Seal, & I=Thermal) label fire doors utilizing standard mortise leaf hinges shall

meet the following performance criteria:

a. Split resistance: UNI 4143. Average of ten test samples shall be not less than 225 kilograms load.

b. Hinge loading resistance: UNI ISO 8275. Average of ten test samples shall be not less than 315 kilograms load when tested for direct screw withdrawal using a 5.5 mm dia., 30 mm long, steel, fully threaded wood screw. Drill 4 mm pilot hole, use 40 mm opening around screw for bearing surface, and engage screw full, except for last 3 mm. Do not use a steel plate to reinforce screw area.

PART 3 EXECUTION

3.1 INSTALLATION

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NOTE: If area rugs or carpeting is used in spaces which door openings serve, such as residential occupancies, specify adequate clearance at bottom of doors.
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Before installation, seal top and bottom edges of doors with the approved water-resistant sealer. Seal cuts made on the job immediately after cutting using approved water-resistant sealer. Fit, trim, and hang doors with a 2 mm minimum, 3 mm maximum clearance at sides and top, and a 5 mm minimum, 6 mm maximum clearance over thresholds. Provide 10 mm minimum, 11 mm maximum clearance at bottom where no threshold occurs. Bevel edges of doors at the rate of 3 mm in 50 mm. Door warp shall not exceed 6 mm when measured in accordance with IWQS requirements.

3.1.1 Fire Doors

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NOTE: Fire doors shall be installed in fire rated frames and with fire rated hardware. Frames and hardware shall be specified in their respective sections of the specifications.
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Install fire doors in accordance with UNI 9723/A1. Do not paint over labels.

3.1.2 Prehung Doors

Install doors in accordance with the manufacturer's instructions and details. Provide fasteners for [stops] [and] [casing trim] within 75 mm of each end and spaced 275 mm on centers maximum. Provide side and head jambs joined together with a dado or notch of 5 mm minimum depth.

[3.1.3 Weatherstripping

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NOTE: Use of wood doors on exterior of buildings is not recommended for permanent structures unless they are well protected from the weather.

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Install doors in strict accordance with the manufacturer's printed instructions and details. Weatherstrip exterior swing-type doors at sills, heads and jambs to provide weathertight installation. Apply weatherstripping at sills to bottom rails of doors and hold in place with a brass or bronze plate. Apply weatherstripping to door frames at jambs and head. Shape weatherstripping at sills to suit the threshold [indicated] [specified under Section 08710, "Door Hardware"]. [Meeting stiles of exterior double-doors shall be made weathertight by means of [a looped vinyl or neoprene strip in an extruded nonferrous metal housing applied to the edge of one door leaf] [a neoprene, vinyl or spring-bronze weatherstripped astragal secured to the inactive door leaf].]

] -- End of Section --